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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,548	08/15/2003	Werner Meier	MOH-P000013	1993
24131	7590	08/10/2004	EXAMINER	
LERNER AND GREENBERG, PA P O BOX 2480 HOLLYWOOD, FL 33022-2480			RICHARDSON, JOHN A	
			ART UNIT	PAPER NUMBER
			3641	

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/642,548	MEIER ET AL.	
	Examiner	Art Unit	
	John Richardson	3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☒ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>08-15-2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Non Final Rejection

1). The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2). The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3). The disclosure is objected to because of the following informalities:

- The specification uses the term **shape means the area moments of inertia** on page 13, lines 3-4; the units for this limitation needs to be stated, such as for example, **ins to the fourth power, i.e., inches 4.**

Appropriate correction is required.

4). Claims 2, 3 are objected to because of the following informalities:

- Claim 3, line 2, and claim 4, lines 2-3, employs the limitations of **defined area moment of inertia**; the units of these limitations need to be stated as such as for example, **ins to the fourth power, i.e., inches 4.**

Appropriate correction is required.

5). Claims 1 to 4, 5 to 8, 10,13 are rejected under 35 U.S.C. 102(e) as being anticipated by Kang et al (U.S. 6,421,407).

The reference discloses a nuclear fuel assembly comprising a plurality of spacers (items 110), a multiplicity of fuel rods (items 125) extending in a longitudinal direction through the said spacers, at least one of the said spacers carrying a flow deflection vane (items 22, 122) to impart swirl to the coolant flow (Column 4, lines 64+, Column 5, lines 1-38),

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the said vanes being curved in convex and concave shapes resembling a spoon or paddle as shown in Figures 8, 9, and described in Column 5, lines 1-7, relating to claim 2, the said vane has a root within said spacer detail (see for example, Figures 5-10), relating to claim 3, the said vane as exemplified in Figure 6, for example, is defined with an area moment of inertia at a maximum in a region where the said vane emerges from the said spacer, relating to claim 4, the moment of inertia of the cross-section of the spoon or paddle shaped vane is set during the production by stretching or compression manufacturing operations and is a product by process limitation; the patentability of the product does not depend on its method of production (note if the product (vane) in the product by process claim is the same as the prior art, the claim is unpatentable even though the prior art product was made by a different process, see for example, *In re Thorpe*, 77 F 2d 695, 227, USPQ 964, 966 (Fed Cir 1985, and MPEP § 2113), relating to claims 5-7, the said vane free end is smaller than the width at the said root by about a factor of 2, as shown for example in Figure 7, relating to claims 8, 10, 13, 16, the said vanes are supported on webs of the said spacer, formed integrally with the said spacer and arranged in a cell of intersecting multiple webs, as shown for example in Figures 8, 10a, 10b, relating to claims 14-15, the said vanes act upon a coolant stream in the same longitudinal direction and produce opposite swirl impulses (Column 5, lines 1-27), and relating to claim 17, the reference discloses a guide tube / sleeve fuel assembly configuration (see for example, Figure 1, items 113, 114) that reads on the claim language and the specification disclosure in this respect as provided on page 2, lines 10-15.

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6). Claims 1, 2, 5, 7, 11, 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Pugh et al (U.S. 3,862,000).

The reference discloses a nuclear fuel assembly comprising a plurality of spacers (items 104), a multiplicity of fuel rods (items 101) extending in a longitudinal direction through the said spacers, at least one of the said spacers carrying a flow deflection vane (items 107) to impart swirl to the coolant flow (Column 4, lines 64+, Column 5, lines 1-38), the said vanes being curved in a concave shapes resembling a spoon or paddle, as described in Column 3, lines 1-6, relating to claims 2, 5, 7, the said curved shaped vane has a root detail with a length about 2 times the width at the said root, as shown in Figure II, relating to claims 11, 12, the reference discloses the said mixing vanes, items 107, arranged at an acute angle up to for example, 45 degrees to the longitudinal plane of the fuel assembly structure as shown in Figure II, and Column 4, lines 15-36.

7). Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over any of Kang et al (U.S. 6,421,407) as applied to claims 1-4, 5-8, 10, 13 or Pugh et al (U.S. 3,862,000) as applied to claims 1, 2, 5, 7, 11, 12.

The claim 9 limitation appears to relate to the specification disclosure statements in page 3, lines 11-19, relating to spacer spacing at intervals of 0.5 meters. It is the examiner's position that such spacing is conventionally known in the light water reactor fuel assembly art. The cited references disclose the cited invention except for a specific recitation of the cited dimensions. It would have been obvious to one having

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ordinary skill in the art at the time of the invention, since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range only involves routine skill in the art. See for example, *In re Aller*, 105 USPQ 233.

8). The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


9). Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Richardson whose telephone number is (703) 305 0764. The examiner can normally be reached on Monday to Thursday from 7.00 AM to 4.30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone, can be reached on (703) 306 4198. The fax phone number for the organization where this application or proceeding is assigned is (703) 305 7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 1113.

John Richardson, PE,

August 05 2004.


JACK KEITH
PRIMARY EXAMINER